DOCUMENT RESUME

ED 345 735 IR 054 033

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TITLE Will Our Past Be In Our Future? Exploring Videotape as an Archival Medium.
SPONS AGENCY National Archives and Records Administration, Washington, DC.
PUB DATE 90
NOTE 21p.; CIDS Research Paper, National Archives and Records Administration.
PUB TYPE Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Access to Information; Archives; *Audiovisual Aids; Futures (of Society); Information Storage; Library Collections; Library Materials; *Preservation; Primary Sources; *Records Management; *Videotape Recordings

ABSTRACT

Noting that there has been a dramatic increase in the use of videotape in recent years, this paper explores videotape's potential as an archival medium. It is suggested that the nation's current videotape holdings should be surveyed to better define the relative importance of the records already documented, to identify records not previously known to exist, and to draw attention to little-known and potentially untapped veins of historically valuable videotapes. A discussion of videotape standards indicates how standards need to be developed in the areas of compatibility of formats and permanence. It is also noted that, while there are a number of appropriate videotape uses, it would be inappropriate to use videotape as the sole source for recording information of permanent value unless suitable preservation activities were undertaken. An overview of videotape preservation methods is given, followed by a discussion of environmental conditions, handling and storage procedures, and the importance of preserving the technology that processes the videotapes. (13 references) (MAB)

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WILL OUR PAST BE IN OUR FUTURE?

EXPLORING VIDEOTAPE AS AN ARCHIVAL MEDIUM

CIDS RESEARCH PAPER

OF

DANIEL A. STOKES

January, 1990

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Contents

- Introduction 1
- Current Holdings 2
- Standards 4
- Appropriate Uses 5
- Preservation and Access 7
  - Overview 7
  - Environmental Conditions 9
  - Handling and Storage 11
  - Preservation of Technology 14
  - Summary 15
- Conclusion 16

Introduction

The dramatic increase in the use of videotape in recent years has caused the archival community to look at the medium and its suitability as a means of storing permanently valuable information. Discussions addressing the issue of how to preserve the information being recorded on videotape today are accompanied by increased attention to the videotaped images created twenty or more years ago which, in many cases, had previously been more or less forgotten or ignored. Both the historical and the archival communities are coming to realize the difficulty of presenting a complete, clear, and accurate picture of the history of the United States over the past 50 years without using the information conveyed through the moving image. Information critical to an understanding of many 20th century activities and events cannot be found in printed materials, and researchers and others must of necessity turn to the moving image.

Many of these images exist on videotape or on film which has been transferred to videotape for easier access. The nation's large collection of videotapes, old and new, is now being looked at with the eye of the archivist to determine what can be done to preserve and provide access to this important and irreplaceable source for documenting the 20th century. At the same time, efforts are needed to determine what uses are appropriate for videotape and to offer guidance to records creators who employ videotape to record information.

The Ampex Corporation introduced the first commercially practical videotape system to the nation in 1956 with the taped broadcast of *Douglas Edwards and the Evening News* on CBS.[1] Since that time over thirty years ago, dozens of videotape formats have been introduced for professional, industrial, educational, and commercial uses, with some finding success in the marketplace and others not. Unfortunately, these formats have not been

compatible with one another and none have been truly archival in character. This has presented problems for the archival community which endeavors to meet the needs of society by preserving and making available the records of the past.

Because videotape formats are not compatible, a different machine is needed for every format to be found in a collection. If necessary machines are not available, one is faced with the prospect of either engaging in the expensive and time-consuming process of transferring videotape to a usable format or accepting the fact that part of a collection will not be available for viewing.

Where videotape is concerned, the average person is rarely called upon to make a decision beyond choosing the correct tape format for their VCR. But the decisions which must be made by the archival community are far more numerous and complicated and must be made in concert with those outside of the archival profession. The surveying and appraisal of current holdings, an investigation into the possible development and implementation of additional standards, the determination of appropriate uses, and the delineation of preservation and access requirements are some of the topics which will require further attention.

Current Holdings

Before an efficient program of preservation and access can be put into place, a survey and appraisal of current holdings should be conducted to determine what must be preserved, who should be retaining and preserving it, and what we can afford to lose. While a significant volume of videotape can be found in repositories across the country, many potentially valuable images are held by television stations and private collectors. Some holdings of videotape are well documented, but the contents of many other collections are

virtually unknown, and it is of obvious importance that we know what exists. The legislature of Hawaii appropriated funds in 1988 for the Hawaii Moving Image Inventory Project which surveyed holdings of moving image materials in the state. While this study provided information on public collections only, it was an important endeavor which other states should consider undertaking on their own or in conjunction with other states. By defining the extent of current holdings, efforts to develop a more systematic approach to the collection, preservation, and use of videotape will be greatly aided.

Although it is difficult to determine the number of repositories with holdings of unique videotape, estimates place the number at over 1,000. Many of these collections are not large, but size alone does not determine the significance of a collection. A survey, however, would provide the opportunity to discover valuable moving images of the past.

A survey of current holdings would also help in developing acquisition policies to avoid some of the unnecessary duplication of collections now taking place. William H. Leary has stated that the "essential prerequisite for systematic appraisal is a well-defined and coordinated acquisition policy for each institution that has a serious program to preserve audio-visual records."[2] Several repositories have enacted fairly specific acquisition policies and other repositories should be encouraged to do the same. Institutions which now have some type of acquisition policy include the J. Paul Leonard Library at San Francisco State University which seeks to "select and preserve unique, complimentary materials which present a comprehensive view of local history" and the Political Commercial Archive at the University of Oklahoma which holds a collection of over 40,000 political commercials, including many on videotape. These commercials represent a valuable source of information concerning presidential campaigns, state and local campaigns, the activities of advocacy groups, and other political activities. The nucleus of this collection was previously privately-owned by Julian P. Kanter, who continues to oversee the collection.

Undertaking a survey of current holdings will provide an opportunity to better define the relative importance of the records already documented, to identify records not previously known to exist, and to draw attention to little-known and potentially untapped veins of historically valuable videotapes. The process of surveying and appraising records, though sometimes painfully slow and treacherous, is nonetheless viewed as a vital component of any plan to preserve and make available vital information recorded on videotape.

Standards

Those who manufacture videotape and the machines to run it, as well as organizations such as the Society of Motion Picture and Television Engineers (SMPTE) have developed standards for use in the industry, but these standards have not helped in the areas of compatibility of formats and permanence. The primary barrier to the development of useful standards is the rapidity of technological change in the videotape industry, and this rate of change is not likely to slacken in the years ahead. The recent efforts by the Sony Corporation to purchase Columbia Pictures clearly illustrate this continuous change. By purchasing Columbia Pictures and its library of classic films, Sony will have the opportunity to issue on its 8mm videotape format many films which the public will want to see and will have to purchase 8mm machines on which to view these videotapes. In this way, yet another videotape format could be introduced.

Archivists currently disagree concerning whether or not videotape manufacturers would be willing to develop a permanent format that is also compatible with existing formats. One group has suggested that if archivists were to develop a consensus on technological concerns and standards for compatibility and permanence, manufacturers

might be convinced to fulfill the needs of the archival community. Others are not so sure and believe that, due to the relatively small market for archival videotape and the rapid changes in technology, the archival community will have to settle for whatever the industry provides. Some archivists, however, continue to work toward the development of an agreement with the industry which would guarantee the long-term production of a single format of videotape and the technology necessary to run it.

Whatever approach archivists take to the problem, they should be aware that the videotape industry is driven by the marketplace and is motivated by forces which do not have archival concerns at heart. The vast majority of videotape users are looking for smaller, more efficient formats and equipment which will make these formats more versatile and easier to use. The long and difficult struggle which archivists have waged in an effort to promote the use of acid-free paper for books and important records should make us realize the rough times which are ahead in the struggle for the development of more stable and compatible videotape formats.

Appropriate Uses

As videotape has become more popular it has been employed for an increasing number of purposes. Some of these uses may be appropriate from an archival standpoint, but others may not. The ease of using videotape can be a strong drawing point, but this must be balanced with the potential of a relatively short life span and the need to implement special storage and use requirements.

One example of the use of videotape is to preserve and make available information on the historical uses and cultural importance of artifacts such as farm tools or household implements. In a related vein, videotape is used to augment the written physical

descriptions upon which many curators and researchers once had to rely for information. Many historical societies, museums, and libraries have discovered that "[v]ideo taping may be used as both enhancement for exhibit interpretation and as educational programming"[3] and have incorporated videotape into their exhibits and other public outreach programs. Many oral historians have turned to videotape for recording interviews. While the use of videotape for oral history presents many issues not related to its value as an archival medium, oral historians must deal with the issue of how videotape should be cared for to ensure its long-term preservation. Artists have also begun to use videotape, both as a means of expression and for recording rehearsals and performances. Governments and businesses are using videotape to record meetings, as promotional materials, and for training personnel. The PBS production *Slow Fires* has spread the news through videotape of the need to save brittle books which are disintegrating at an alarming rate. The use of videotape as a means of communicating the plight of videotape might prove to be very useful.

Videotape is also used extensively as an access tool. The Florida State Archives, with the assistance of a Library Services and Construction Act grant, has undertaken a preservation project to transfer promotional films in its motion picture film collection to videotape. The films, transferred from the Florida Department of Commerce, document "communities, recreational activities, attractions, and industry from the 1950's to the 1980's."[4] The project will produce a set of 3/4" master tapes and a set of 1/2" tapes for reference use.

A far more extensive use for videotape is filming by news stations. By the early 1980s, videotape had became the primary means by which the major national networks and local stations recorded the news. This has presented problems, at least from the archivist's point of view, due to the ease with which videotape can be erased and reused, the lack of

cataloguing at many stations, and the inadequate storage conditions under which videotapes are often stored. Many news organizations have neither the room for nor the interest in preserving every videotape they produce and this has led to the destruction of important news footage, especially footage of local news. Videotapes recorded by smaller stations are especially in danger because many of these stations do not have budgets which allow them to save every tape they produce nor do they have the resources to appraise their videotape libraries to single out their most valuable holdings for preservation. When the shelves are full, the solution employed is often to throw out tapes or reuse them.

All of these uses are generally appropriate for videotape. The inappropriateness of videotape comes into play, however, when it is used as the sole source for recording information of long-term or permanent value. The uncertain lifespan of videotape, the lack of compatibility among formats, and the rapidity of technological change all make videotape an inappropriate medium for recording information which is important in describing the times in which we live, unless suitable preservation activities are undertaken.

Preservation and Access

Overview

A participant at the Annenberg Washington Program's Roundtable on Television Preservation, held in May 1989, stated that to preserve film and not provide adequate access is "historical malpractice." Though this statement was made in the context of a discussion concerning newsfilm, it can be applied to any other type of moving image, or any archival records whatsoever. If funds are allocated for the preservation of a collection but not for the preparation of finding aids and a satisfactory level of staffing to provide access, then the archival community is not fulfilling its obligation to both ensure the preservation of and

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promote access to the records of our past. The same is true if access is provided, but only to a portion of a collection due to deterioration resulting from inadequate preservation precautions or insufficient intellectual control.

The SMPTE will continue to serve as a key player in efforts to develop further standards for videotape. They must be joined, however, by others. The videotape industry, users of videotape, archivists, and repositories with large holdings of videotape must become involved in order to have input from all of those who are involved in the creation, use, and preservation of videotape.

While there is general agreement that long-term preservation of videotape can be undertaken successfully, the lifespan of videotape has only been estimated, and not everyone achieves the same results under similar conditions of storage and use. There are, however, a number of precautions which have been recommended to extend the amount of time videotape will remain useable. Due to a lack of agreement concerning the value of all of these steps, the sharing of individual experiences and the availability of staff, funding, and other resources must serve as a guide for many repositories as they attempt to develop and implement a preservation and access program to suit their needs.

As previously stated, the appraisal of current holdings is part of the preservation process and archivists have a responsibility to "make the appraisal process as rational as possible."[5] Appraisal will be difficult, as attempts are made to determine what is of short- and long-term value and what can be allowed to deteriorate, but the task cannot be avoided. Of course, there are instances when appraisal is performed for us. The impermanence of the medium itself and the often less than ideal conditions under which many videotapes are stored and used both before and after they have been accessioned into a repository can result in damaged and irretrievable images. This is obviously not the preferred method of records appraisal, but it is one of the methods being practiced at the present time.

Once we have identified that information which has long-term value, a consensus of general preservation requirements for the care of videotape should be in place to serve as a guide for those who need assistance. Though these requirements are likely to change over time as experience and testing refine preservation techniques, a starting point from which change can take place is a necessity. In addition to preserving what we have, we must also develop a system for the accessioning of future videotapes so as to lessen the risk of losing important information now being created.

Environmental Conditions

As with other archivally valuable records, an environment which is clean and humidity- and temperature-controlled is best for the storage of videotapes.[6] Recommended levels for relative humidity range from 20% to as high as 70%, although a relative humidity somewhere between 40% and 60% is most often suggested. Whatever humidity level within the acceptable range a repository chooses to implement, it should not vary by more than ± 10%. Fluctuations in humidity can cause the binder to break down and the tape backing to lose some of its strength. If humidity control is difficult or too expensive to maintain, videotapes may be sealed in heavy gauge, moisture-proof plastic bags or aluminum-coated polyethlene bagging before being placed in storage containers.[7] This may be neither practical nor necessary if tapes are used for reference, but it might be considered for valuable originals or masters which are never or rarely used.

Temperatures in the 60°-70°F range are generally accepted, but some sources suggest that temperatures as high as 74°F will not present any preservation problems and that those as low as 50°F may actually be more beneficial. As with humidity, the temperature level, as long as it is within the acceptable range, is not as important as making sure that the temperature does not vary widely. Temperature variations should not exceed ±5°F.

If possible, reference and other uses should be conducted under environmental conditions similar to those of the storage facility. If this is not possible, it is recommended that tapes be allowed to sit in the new environment for at least one hour before being used. Because the components which make up videotape expand and contract at different rates, changes in environment are potentially damaging if precautions are not taken. A tape which has not had time to acclimate to a warmer environment may also develop moisture which is good for neither the tape nor the machine on which it is played. The amount of time a videotape is allowed to acclimate will depend upon how much variance exists between the environmental conditions in the storage area and those in the area of use. If videotape is stored at a low temperature, such as in a storage area designed to house film, the adjustment period could be as long as 24 hours. While low humidity is not a problem in storage areas, it can be a problem in areas where videotape is being used. Low humidity can increase both the amount of dust in the air and the static attraction of that dust to exposed surfaces of videotape.

No matter how clean we attempt to maintain storage facilities, dust often accumulates on lesser-used records. Because of this, it is a good idea to clean the videotape storage container before removing the tape so that any dust which has accumulated will not contaminate the tape as it is removed from the container. Further protection from dust can be achieved by placing the videotape in a plastic bag before placing it in the storage container.

It is important to remember that "an operation that is environmentally out of control is courting disaster."[8] An awareness of the importance of environmental control is necessary for all those who accession videotape as part of their holdings. Using resources to provide adequate environmental conditions can also save a repository from spending future resources on correcting preventable problems.

Handling and Storage

Since the time of its introduction, concerns about the permanence of videotape have not been prevalent. Few believed that the useful life of videotape would extend past its technical life. News stations generally considered the information they collected to be useful only as long as it was current and often destroyed their older film and tape, stored it without making provisions for future access, or simply reused it. Because videotape is compact, reusable, and so much a part of our leisure culture, many people, including researchers and archivists, may handle and manage it with less care than records in other physical forms. Extra efforts may be necessary to teach both staff and researchers the proper way of handling videotape. Many of us tend to unconsciously, or unconscientiously, toss tapes around and pop them in and out of the VCR. But a VCR is not a toaster, as John Dale has aptly stated in an article dealing with preventative maintenance, and videotape has not been manufactured for rough treatment. In general, the less a tape is handled, the better off it will be.[9]

As with environmental conditions, there are differing ideas concerning how videotape should be handled.[10] To begin with, there is disagreement about how videotape should be wound before it is stored. Some believe that videotape should be stored "played," which means that the tape must be rewound before it is used again, breaking any static charge which may have developed and removing any dirt which may have accumulated. It has also been suggested that videotape packs better when it is wound for storage in the played position. Others support the idea that videotape should be rewound before it is placed into storage. Whether to store videotape played or rewound is a personal preference, but cassettes should never be placed into storage before they have had a complete and uniform winding. The constant starts and stops which a tape will undergo during use can cause variations in the tension and wrap which can damage the tape. If

tapes are not wound completely from end to end, edge damage may result due to "stepping," in which individual strands of tape rise above the others and can be bent if the tape is not handled carefully. If tapes are to be stored played, they must be rewound and then run forward to the end. If they are to be stored rewound, the tape must be played to the end and then rewound. A complete winding also ensures that no images are left exposed. Before being placed back into storage, the outer end of reel-to-reel videotapes should be secured with an adhesive tab which will not leave any residue on the videotape.

Videotapes should be stored and transported in an upright position to avoid damage to the edges, pack shifting, and other potential problems. Cassettes should also be stored so that the heavy end is down. Reel-to-reel videotape should be supported at the hub so that the weight of the reels is not supported by the flanges. This requires that the box in which the tape is stored have an insert which will provide the necessary support. If the flanges are forced to support the entire weight of the tape and reel they may become damaged, resulting in that annoying sound made by tape scraping against the flanges the next time the videotape is played.

Two other problems which can develop are print through and drop-out. Print through results "when particles in one tape layer are remagnetized by adjacent layers of tape. In effect, one tape layer imprints onto another to cause an echo on playback."[11] In order to prevent print-through, it has been recommended that videotape be rewound every few years if it has not been played. Through a contractor, the Department of Defense Motion Media Records Center at Norton Air Force Base has its tapes rewound every three to five years. The National Archives, however, does not rewind its tapes due to limitations of time, equipment, and space, and the belief that it does not appear to be essential to successful long-term storage. Drop-out is caused by bald patches on the videotape or a loss of contact between the videotape and the head of the tape machine due to

contaminants or head wear. The result is a loss of the signal which is characterized by the appearance of "snow" or a burst of noise. Drop-out can be avoided by keeping both the videotape and the machine head clean.

Even with appropriate storage and use precautions, it is important that videotape collections be inspected periodically for signs of deterioration and other "sinister metamorphoses."[12] A random sample from the collection should be checked for loose winds, the accumulation of contaminants, rippled edges, and any other real or potential problems. If problems are found, a larger sample should be taken to determine how widespread the problems are and what action should be taken to correct the situation. In addition to inspecting videotapes and the storage facility in which they are placed, attention should be given to the microenvironment of the tape's storage container. Adhesives and foams for cushioning may deteriorate and lead to problems. Before a container is designated as the permanent housing for a videotape, it must be determined whether or not it is suitable for long-term storage or if it was only meant to provide protection during shipment.

One of the most important rules to remember is that, ideally, users should not be allowed to view masters or originals of videotapes. Reference copies should be available for researchers and other users. Of course, many repositories have staffing and storage limitations, as well as financial constraints, which may preclude the creation of reference copies for an entire videotape collection, but reference copies of heavily used and valuable videotapes should be made if at all possible.

A disaster plan is another important element which should be included in any preservation program. Disaster plans should include special policies concerning videotape to be followed in case of fire, water, or other damage. There are some basic policies which can be enacted for most collections, but the manufacturer should be contacted for additional

information. The best time to do this, obviously, is before an accident has occurred. By doing this, the appropriate actions to follow if a disaster does occur will be on hand and implemention can take place immediately.

Preservation of Technology

In addition to the preservation of videotape itself, efforts are needed to preserve the technology necessary to play the various formats of videotape. The problems involved in maintaining or even locating equipment are as important as those involved in preserving videotape itself. It is very likely that a particular format of videotape will have a longer lifespan than the machines necessary to use it. Five to ten years after production has stopped on a particular machine, the task of finding spare parts can become difficult. This has resulted in problems because many of the formats currently in repositories are no longer in common use and machines to run them are few in number and are usually no longer serviced by the manufacturer. Also, as we have all experienced, it is nearly impossible to find a user manual more than a few days after unpacking a piece of equipment. But machines and manuals are of obvious importance for the preservation of and access to videotape.

One suggestion for preserving videotape technology is to establish a clearinghouse of machines, technical drawings, and additional information gathered from engineers and others who have worked in the industry since its inception.[13] This clearinghouse would be available for repositories to view formats in their collections if they lack the required machinery or to transfer older videotapes to newer formats. Rather than relying on a clearinghouse, some repositories have acquired machines from television stations for their own use or as a source of spare parts for machines they already have but which are no longer serviced by the manufacturer.

Summary

All of this leads one to the conclusion that preservation is an ongoing and difficult process and not merely the act of setting videotapes on a shelf and expecting them to be usable when they are needed in the future. Many suggestions have been offered as aids in the preservation of videotape. Some institutions may have the resources to implement a number of them, but many repositories with videotape in their holdings lack the time, personnel, equipment and funding with which to undertake a detailed preservation program. Repositories must be kept informed of the most up-to-date preservation information so that they can make informed decisions concerning what actions are most important when caring for a collection and what extra precautions should be taken to care for especially valuable tapes. Concentrating on keeping temperature and humidity stable and the storage facility and machines clean may be all that a small repository can handle and they need to know how to do this most efficiently and effectively.

The preservation requirements for videotape are expensive, and the uniqueness and potential for use by researchers will have to be factored into decisions concerning the extent of an institution's preservation program. No institution with limited resources wants to spend time and money performing preservation exercises which add nothing to the lifespan of their collection, but it would be disastrous as well to neglect basic precautions and risk the loss of valuable information. Discussions, education, and cooperation are as important to preservation as environment and there is a need to share experiences in places other than meetings. There is also a need to coordinate activities so that there is not unnecessary duplication of efforts.

It is unlikely that the videotape industry will manufacture videotape and equipment designed specifically for the use of the archival community any time in the foreseeable future. Rather, the archival community will have to adapt to what is produced for the

marketplace and continue to work for the development of videotape with greater longevity and compatibility with other formats. Trends toward smaller and more efficient equipment and tape are sure to continue and repositories will have to develop ways to deal with what, at present, continues to be a difficult situation.

Conclusion

Discussions concerning videotape as an archival medium have been going on for some time. One of the most ambitious discussions, which continues, involves the formulation of a national policy concerning videotape. While the details of such a policy are still being debated, some of the basic components would likely include a consensual strategy for preservation, an apparatus for supporting the efforts of non-profit institutions, improved standards for videotape and equipment which emphasize longevity and compatibility, and a center which would offer technical assistance. It has also been suggested that a national policy should be developed before any large amounts of funding are provided, requested, or expected. The archival community must set a direction to either develop a comprehensive national policy or tackle parts of the problem individually, but systematically.

When dealing with videotape, there may also be the need to develop a new or modified mentality. Videotape is not now considered to be an archival medium and yet there are numerous examples of permanent information existing on videotape. If archivists do not make an effort to steer records creators away from using videotape for permanently valuable information and continue to accession permanently valuable information stored on videotape, what message is being conveyed? The message may be that videotape is not archival in the sense that it is deteriorates more quickly than other media, but that it is

archival in the sense that repositories will accept it and take care of it as if it were permanent.

There are many other questions which remain unanswered and will require further investigation. Are we allowing documentation of events on videotape to replace documentation on more stable media? What will be required so that audio-visual records such as videotape can positively compete for funding with textual, electronic, and other records? How are we to adequately use the limited amount of funding available for what is definitely an expensive proposition? Should efforts focus on developing the best possible storage facilities, creating a permanent videotape format, or transferring important information from outdated formats to more recently developed formats or to motion picture film? There are strong, well-informed opinions and considerable caches of energy which are somewhat restrained in meetings but could be unleashed in creating substantive results.

Carl Degler has written that "all human beings seek to locate themselves in a stream of time; it is history, after all, that provides a sense of personal identity by being the memory of one's neighborhood, community, nation, race, religion, ethnicity, and gender."[14] Our memory has been expanded to include moving images in addition to the written word, maps, drawings, photographs and similar records which had been our only sources of discovery in the past. By taking steps to deal with videotapes which hold so much of the memory necessary to document the 20th century, we will not interrupt the stream of time.

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January 31, 1990

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Notes

1. Alan Lewis, "Videotape," in *Preserving America - Performing Arts*, ed. Barbara Cohen-Stratyner and Brigette Kueppers (Theater Library Association, 1985), p. 58.

2. William H. Leary, "Managing Audio-Visual Archives," in *Managing Archives and Archival Institutions*, ed. James Gregory Bradsher (Chicago: University of Chicago Press edition, 1989), p. 106.

3. American Association for State and Local History, Technical Leaflet 167, "Beyond the Cards: An Introduction to Documenting Historical Collections with Video Tape," (Nashville: American Association for State and Local History, 1989).

4. Florida State Archives, *Technical Bulletin of the Bureau of Archives and Records Management* 3 (July/September 1989): 2.

5. Leary, p. 106.

6. Much of the information presented in the "Preservation and Access" section of this paper is based upon a compilation of a number of sources. Among the most useful of these are John Dale, "The Best Prescription for VCRs: Preventative Maintenance," *Audio Visual Product News*, April/May 1980, pp. 46, 52, 90; Joseph G. Empsucha, "Common Sense Preservation: A Videotape and Film Factsheet," (National Center for Film and Video Preservation), pp 2-4; Marvin Markowitz, "Eighteen Ways to Keep Videotape Healthy and Productive," *Business Screen*, 10 April 1981, pp. 26-8; Lewis, "Videotape;" and Jim Wheeler, "Long-Term Storage of Videotape," *SMPTE Journal*, (June 1983), pp. 650-4. Several articles from an information series from 3M, entitled "Retentivity" provide considerable practical advice. The minutes from a meeting of the National Archives and Records Administration's Ad Hoc Subcommittee on Preservation of Video Recordings, a subcommittee of the Advisory Committee on Preservation, held July 28-29, 1988, also provides considerable useful information.

7. Lewis, p. 60.

8. Ron Reph, "The Basics: Videotape Care and Handling," *MagTracks for Audio and Video Professionals*, p. 1.

9. Dale, p. 52.

10. Reph, p. 1.

11. Joan Acocella, "Deteriorating Videotapes: Fingers in the Dike," *The Village Voice*, 8 Dec. 1987.

12. A considerable amount of discussion concerning this issue took place at the Annenberg Washington Program's Roundtable on Television Preservation held in May 1989 and the July 28-29, 1988, meeting of the National Archives and Records Administration's Ad Hoc Subcommittee on Preservation of Video Recordings.

13. Carl Degler, "Remaking American History," *Journal of American History* 67 (June 1980): 22.